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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/019,269 | 12/28/2001 | Axel Schumacher | R.35853 | 4016 |

2119 7590 04/02/2004
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EXAMINER

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ART UNIT PAPER NUMBER

3683

DATE MAILED: 04/02/2004

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 13

Application Number: 10/019,269
Filing Date: December 28, 2001
Appellant(s): SCHUMACHER, AXEL

Attorney Ronald E. Greigg
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 19, 2003.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that with respect to issue 1, the claims stand or fall together. With respect to issue 2, claims 8-19 are grouped together, claims 20-25 are grouped separately from claims 8-19 and separate arguments for patentability are presented for claims 20-25.

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,090,518 Schenk et al. 2-1992

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 8-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites "that any reduction of the braking force is imperceptible" in lines 8-9. It is unclear with the word "imperceptible" as to what applicant is referring to.

Claim 9 recites "that any reduction of the force exerted is imperceptible" in lines 6-7. It is unclear with the word "imperceptible" as to what applicant is referring to.

Claim 20 recites "that any reduction of the braking force is imperceptible" in lines 9-10. It is unclear with the word "imperceptible" as to what applicant is referring to.

Claims 8-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Schenk et al. (U.S. Patent Number 5,090,518).

Re-claims 8, 10, 12, 14, 16, and 18 Schenk et al. discloses a method for actuating a wheel brake assembly, comprising the steps of (a) initially actuating the brake assembly in a tightening direction to cause a brake lining to be pressed against a brake body to establish a quasi-static terminal braking state, then (b) actuating the brake assembly for a brief period of time in a release direction opposite the tightening

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direction, and then (c) again actuating the brake assembly in the tightening direction, said brief period of time of the actuation in the release direction being selected to be so short that any reduction of the braking force is imperceptible; repeating steps (a) and (b); wherein steps (b) and (c) are repeated after a predetermined period of time after the onset of the re-tightening; wherein steps (b) and (c) are repeated when the brake assembly comes to a stop upon re-tightening; wherein number of repetitions of steps (b) and (c) is limited; wherein said brief period of time during which the brake assembly is actuated in the release direction is defined by a travel distance by which an actuating element of the brake assembly is moved in the release direction. The method recited is relatively broad and appears to read on the well-known anti-lock brake system of Schenk et al. wherein the brakes are actuated and released intermittently and/or repeatedly in a brief period of time so as the wheel does not slip or lock on different road surface conditions, see col. 2, lines 56-68 and col. 3, lines 1-20.

Re-claims 9, 11, 13, 15, 17, and 19 Schenk et al. discloses a method for actuating a mechanical system that pressed against the friction element is readable as involving friction and having a spring elasticity to increase a force exerted by the system beyond a force attainable in a quasi-static state, comprising the steps of (a) actuating the system for a brief period of time in a release direction and then (b) tightened, the period of time of the actuation in the release direction being selected to be so short that any reduction of the force exerted is imperceptible; repeating steps (a) and (b); wherein steps (a) and (b) are repeated after a predetermined period of time after the onset of the re-tightening; wherein steps (a) and (b) are repeated when the system comes to a stop

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upon re-tightening; wherein number of repetitions of steps (a) and (b) is limited; wherein said brief period of time during which the system is actuated in the release direction is defined by a travel distance by which an actuating element of the system is moved in the release direction. The method recited is relatively broad and appears to read on the well-known anti-lock brake system of Schenk et al. wherein the brakes are actuated and released intermittently and/or repeatedly in a brief period of time so as the wheel does not slip or lock on different road surface conditions, see col. 2, lines 56-68 and col. 3, lines 1-20.

Re-claims 20-25 Schenk et al. discloses a method for actuating an electromechanical wheel brake assembly having an electric motor 28,38, a brake actuator and means 34,44 connecting the motor to the brake actuator into a translational motion, the method comprising the steps of (a) initially actuating the motor in a tightening direction to cause a brake actuator to be pressed against a brake body to establish a quasi-static terminal braking state, then (b) actuating the motor for a brief period of time in a release direction opposite the tightening direction, and then (c) again actuating the motor in the tightening direction, said brief period of time of the actuation in the release direction being selected to be so short that any reduction of the braking force is imperceptible; repeating steps (a) and (b); wherein steps (b) and (c) are repeated after a predetermined period of time after the onset of the re-tightening; wherein steps (b) and (c) are repeated when the brake assembly comes to a stop upon re-tightening; wherein number of repetitions of steps (b) and (c) is limited; wherein said brief period of time during which the brake assembly is actuated in the release direction

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is defined by a travel distance by which an actuating element of the brake assembly is moved in the release direction. The method recited is relatively broad and appears to read on the well-known anti-lock brake system of Schenk et al. wherein the brakes are actuated and released intermittently and/or repeatedly in a brief period of time so as the wheel does not slip or lock on different road surface conditions, see col. 2, lines 56-68 and col. 3, lines 1-20.

(11) Response to Argument

Examiner still maintains Claims 8-25 are rejected under 35 U.S.C. 112, second paragraph as being indefinite.

Claims 8 and 20 recite "that any reduction of the braking force is imperceptible" and claim 9 recites "that any reduction of the force exerted is imperceptible". It is vague and unclear as imperceptible to what?

On page 6 of the Appeal Brief, Specification, paragraph [0012]
"Thus, what is meant by --any reduction of the braking force is imperceptible-- is that any reduction of the braking force is so slight that it cannot be perceived or felt by a driver applying the braking force." This phrase is undefined in the specification, therefore this phrase does not support applicant's explanation.

The specification fails to disclose the metes and bounds of the term "imperceptible". Is it imperceptible a driver's foot or is it imperceptible to an electronic sensor that would signal to the driver when the brake has been released. Furthermore, being imperceptible to the driver is vague. Each driver would have a different range of perceptibility. One driver might be able to sense when the brake is released, while

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another driver wouldn't be able to sense the same condition. The metes and bounds of the term "imperceptible" has not been defined in a definite, concrete, and tangible manner. It is impossible to determine what is meant by " any reduction of the braking force is imperceptible".

Examiner maintains claims 8-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Schenk et al. is proper.

On page 9, lines 17-19 of Appeal Brief recites --" said brief period of time being selected is so short that the braking force is reduced" (it is assumed the examiner meant to say --so short that the braking force is not reduced).--.

Examiner still meant "so short that the braking force is reduced". Schenk et al. teaches the use of an anti-lock brake wherein the brakes are actuated and released or reduced intermittently and/or repeatedly in a brief period of time in order the wheels will not slip or lock depending on road surface conditions see col. 2, lines 47-68 and col. 3, lines 1-23.

The reduction in the instantaneous braking force (force exerted by the pad on the rotor) during ABS mode is not perceived by the driver, i.e. the driver perceives that the vehicle slows down without knowing that there has been intermittent reductions in the braking force (force exerted by the pad on the rotor) which increases the overall braking force of the vehicle.

On page 10, lines 16-18 of the Appeal Brief "At no time during the actuation of Schenk's brake system ----- overcome the static friction existing in the brake system."

All ABS system do perform this function that is to prevent wheel lock. There was no mention of this in the claim.

On page 10, lines 19-22 of the Appeal Brief "Further, nowhere in Schenk et al. description is there any teaching or suggestion of a method for actuating a mechanical system such as a wheel brake assembly involving friction and having a spring elasticity to increase a force exerted by the system.

Examiner disagrees since the wheel brake assembly of Schenk et al. is not totally rigid during braking force applied there is some spring elasticity in mechanical connections such as the piezoelectric element 36 when alternating voltage source 54 is applied. Applicant also disclosed in par. [0010], lines 1-3 of the specification "The wheel brake assembly is not absolutely rigid; even when embodied stiffly, it has some elasticity". All brake systems inherently have spring elasticity.

On page 11, lines 14-16 of the Appeal Brief "There is no teaching of any actuation of the brake units in both directions during the brake applying phase of operation or that Schenk is seeking a brief release of the brake device to overcome the static friction existing in the brake system."

Examiner disagrees since Schenk et al. teaches the use of primary actuating members 24, 26 and secondary actuating members 36, 46 in an anti-lock brake system wherein braking force are increase or decrease so as the wheel does not slip or lock depending upon road surface conditions, see col. 2, lines 47-68 and col. 3, lines 1-23. There was no mention of this in the claim.

On page 13, lines 2-5 of the Appeal Brief "There is no teaching of any actuation

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of the electric motors in both directions during the brake applying phase of operation or that the brief period of time of the actuation in the release direction is selected to be so short that any reduction of the braking force is imperceptible".

Again Examiner disagrees since Schenk et al. teaches the use of primary actuating members (electric motors) 24, 26 (the secondary actuating units are also a part of motor units 24, 26, see col. 4, lines 34-35 and 54-55) in an anti-lock brake system wherein the actuating members are controlled to increase or decrease the brake apply forces so as the wheel does not slip or lock depending upon road surface conditions, col. 3, lines 15-23.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

July
M. Sy
March 30, 2004

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